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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

AMARI, ALESSANDRO V

ART UNIT PAPER NUMBER

2872

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/625,704

Applicant(s)

WILKLOW, RONALD

Examiner

Alessandro V. Amari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 17-23 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 19-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 17 and 18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 30 November 2004.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features of the optical element as a substrate in claim 21, the lens as a substrate in claim 22 and the mirror as the substrate in claim 23 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith US 6,395,433.

In regard to claim 1, Smith teaches (see for example, Figures 1A, 1C) a method comprising providing a substrate (14) that transmits light having wavelengths of about 100 nm to about 300 nm as described in column 5, lines 29-43; forming an amorphous isotropic layer (12) on the substrate, which transmits the light at wavelengths in the ranges without substantial attenuation of the light; patterning the layer; and removing a portion of the layer from regions of the substrate based on the patterning, such that a diffraction element is formed as described in column 9, lines 37-67 and column 10, lines 1-14.

Regarding claim 2, Smith teaches further comprising making the substrate from barium fluoride as described in column 6, lines 37-46.

Regarding claim 3, Smith teaches further comprising making the substrate from calcium fluoride as described in column 6, lines 37-46.

Regarding claim 4, Smith teaches wherein the forming step comprises forming the layer from silicon dioxide as described in column 3, lines 50-55 and column 6, lines 1-5.

Regarding claim 5, Smith teaches that the removing step comprises using a material that only removes the portions of the layer as described in column 9, lines 64-67 and column 10, lines 1-14.

Regarding claim 6, Smith teaches that the substrate acts as a stop to control a thickness of the layer as described in column 6, lines 38-43.

Regarding claims 8 and 20, Smith teaches that the forming step comprises forming the layer to a thickness of about 100 nm to about 300 nm as described in column 6, lines 27-29.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith US 6,395,433.

Regarding claim 7, Smith teaches the claimed invention except for the substrate having a thickness of about 1mm to about 6mm. It would have been obvious to one

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having ordinary skill in the art at the time the invention was made to manufacture a substrate with the claimed thickness ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would have been motivated to manufacture a substrate with the claimed thickness ranges for the purpose of providing a stable and substantial base for other layers. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith US 6,395,433 in view of Su US 5,982,545.

Regarding claim 19, Smith teaches the invention as set forth above but does not teach that the patterning step comprises forming a resist layer on the layer; exposing a pattern onto the resist layer, removing a portion of the resist layer based on the exposing; removing a portion of the layer based on the patterned resist layer; and removing a remaining portion of the resist layer.

Regarding claim 19, Su teaches that the patterning step comprises forming a resist layer on the layer; exposing a pattern onto the resist layer, removing a portion of the resist layer based on the exposing; removing a portion of the layer based on the patterned resist layer; and removing a remaining portion of the resist layer as shown in Figures 4a-4d.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the method as taught by Su for manufacturing the

diffraction element of Smith in order to facilitate easier fabrication, higher volume production and lower cost as set forth in the abstract of Su.

8. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith US 6,395,433.

Regarding claims 21-23, Smith teaches the invention as set forth above but does not teach regarding claim 21, that the providing step provides an optical element as the substrate or regarding claim 22 that the providing step provides a lens as the substrate or in regard to claim 23 that the providing step provides a mirror as the substrate. Official Notice is taken that it is notoriously old and well known in the lithography art to utilize optical elements as substrates. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide optical elements such as a lens or mirror as a substrate in order to provide for an integrated optical element which includes a diffractive component, thus simplifying optical system design.

Conclusion


9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kato et al US 2002/0030890 teaches a method for forming a diffraction element with a substrate and an amorphous isotropic layer on the substrate.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro V. Amari whose telephone number is (571) 272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ava *ava*
29 December 2004


MARK A. ROBINSON
PRIMARY EXAMINER